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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,930	12/21/2001	Tomoya Yamamoto	00839.000451	7676

5514 7590 02/16/2005

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EXAMINER

WEINER, LAURA S

ART UNIT PAPER NUMBER

1745

DATE MAILED: 02/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/023,930

Applicant(s)

YAMAMOTO ET AL.

Examiner

Laura S Weiner

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 and 50-56 is/are pending in the application.
- 4a) Of the above claim(s) 20, 21, 45 and 46 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23, 25, 48 and 51-56 is/are allowed.
- 6) ☒ Claim(s) 1-19, 22, 24, 26-44, 47 and 50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 1-19, 22-44, 47-56 with traverse of a species comprising a propylene carbonate and ethylene carbonate solvent, a lithium tetrafluoroborate, a matrix comprising formula (1) and (2) where R₃ is a straight chain alkyl group having 6-22 carbons, where A is (CH₂CH₂O)_n and B is (CH₂CH₂O)_{n-Z} and does not contain a retaining material in the reply filed on 8-4-04 is acknowledged.

Claims 20-21 and 45-46 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8-4-04.

Response to Arguments

2. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. Claims 1-19, 22, 24, 26-44, 47, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirahara et al. (JP 2000-285751, abstract and machine translation) in view of Scrosati et al. (5,645,960).

Hirahara et al. teaches a solid electrolyte for a lithium polymer battery comprising a polyalkylene oxide (formula IV, R₉=ethylene oxide; e, f= 1-25), a lithium salt, a crosslinkable block-graft copolymer formed of a block A of repeat unit (formula I), a block B (formula II) and/or block C (formula III). Hirahara et al. teaches on page 11 of the machine translation that tetrahydrofuran was use and teaches on page 1 that the negative electrode comprises lithium metal.

Hirahara et al. discloses the claimed invention except for specifically teaching that the content of the solvent is in a range of 1 to 20 in terms of a ratio of a weight of the solvent/a weight of the polymer matrix.

Scrosati et al. teaches in column 2, lines 25-48, that an electrolyte comprises a polymer matrix, an inorganic salt and a solvent. Suitable organic polymeric matrices include polyethylene oxide, polypropylene oxide, polymethyl (methacrylate), etc. The solid electrolytes also contain a solvent (plasticizer) which is added to the matrix in order to enhance the solubility of the inorganic ion salt in the solid electrolyte and thereby increase the conductivity of the electrochemical cell. Suitable solvents for use in the solid electrolytes include tetrahydrofuran, propylene carbonate, ethylene carbonate, etc. The electrolyte comprises about 15-25 wt% polymeric matrix, about 70-80 wt% solvent and about 3-10 wt% salt [70/25=2.8 – 80/15=5.3].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the solvent in a range of 2.8-5.3 in terms of a ratio of a weight of the solvent/a weight of the polymer matrix because Scrosati et al. teaches that this ratio of the solvent is known in regard to the solid electrolyte comprising about 70-

Art Unit: 1745

80 wt% solvent which is added to the matrix in order to enhance the solubility of the inorganic ion salt in the solid electrolyte and thereby increase the conductivity of the electrochemical cell.

Allowable Subject Matter

4. Claims 23, 25, 48, 51-56 are allowed.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

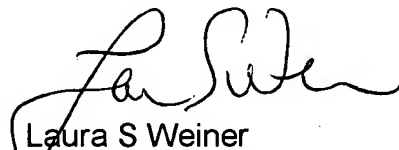
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura S Weiner whose telephone number is 571-272-1294. The examiner can normally be reached on M-F (6:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura S Weiner
Primary Examiner
Art Unit 1745

February 14, 2005